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Licensing Issues and our Consortium's Approach to a Nationwide Health Information Network Architecture

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This presentation discusses a NHIN Architecture Prototype project made possible by a contract from the Office of the National Coordinator for Health Information Technology (ONC), DHHS. The content is solely the responsibility of the authors and does not necessarily represent the official view of ONC.

What We Set Out To Do

- Build a secure NHIN prototype that leveraged existing infrastructure and:
  - Allow patient control of their health information
  - Connect systems with a wide variety of IT platforms
  - Deal with the critical issues of data normalization
  - Provide enough flexibility to allow local choice in the degree of centralization of data
  - Meet the requirements of the three use cases
- Show we could quickly build out RHIOs

Architecture Principles

- Must support a working prototype that enables the three use cases
  - EHRs
    - EMPI/RLS, messaging and infrastructure to allow aggregated view of patient data
  - Consumer Empowerment
    - Sophisticated information governance model supporting patient choice
    - Flexible, hybrid approach to how much data is stored locally, regionally and nationally
  - Biosurveillance
    - Need for terminology/messaging services and standards to support robust data analytics
- Must be scalable
- Must have the capability to support future requirements such as clinical research and care management
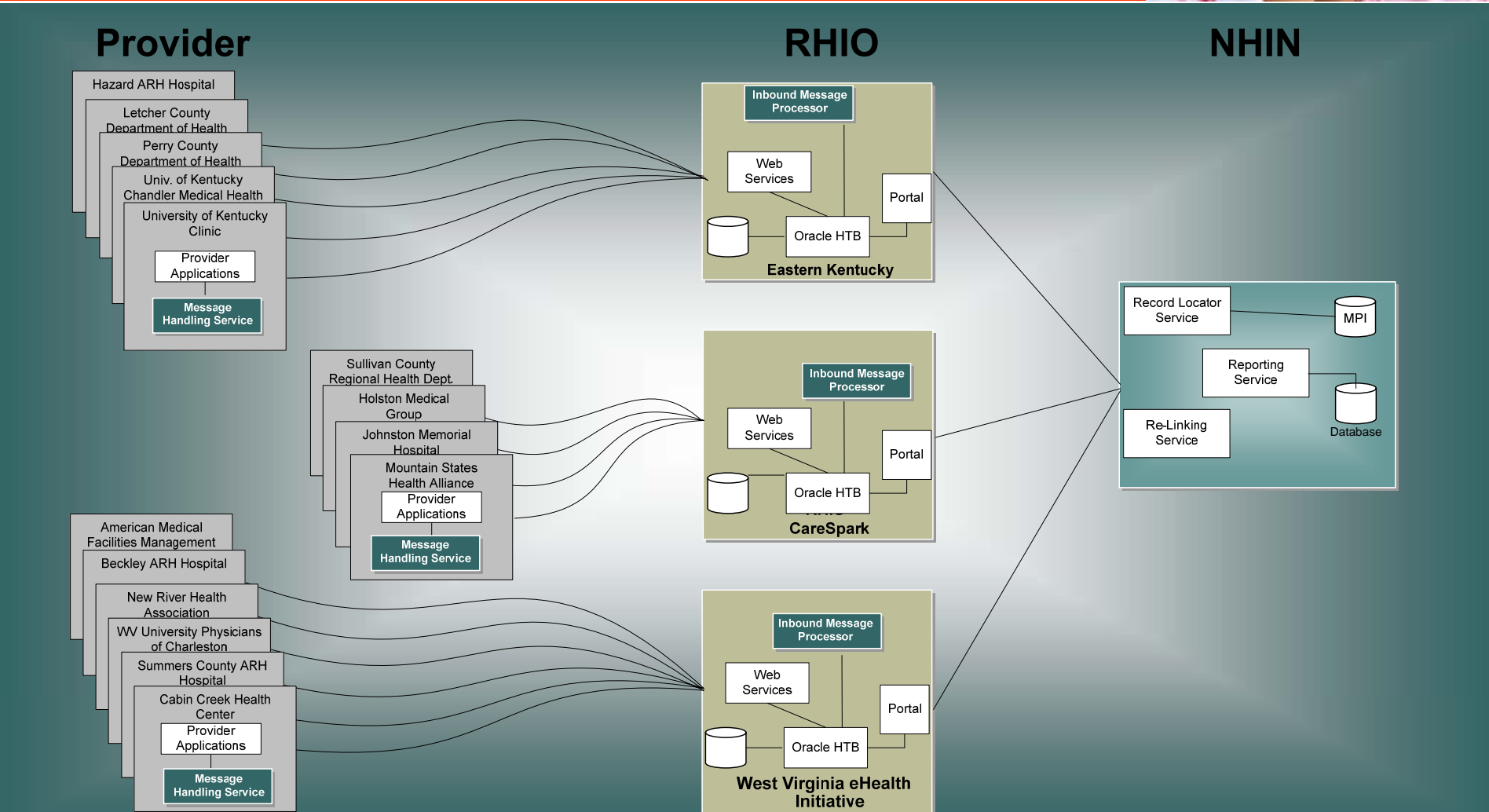- Must be component based and use Service Oriented Architecture principles

Characteristics of our Distinct Health Markets

Appalachian Region

- Our location includes: CareSpark from the tri-cities region of northeastern Tennessee and southwestern Virginia; West Virginia eHealth Initiative; and Eastern Kentucky Regional Health Information Organization

- Characteristics of our distinct health care markets:
  - Rural
  - Have RHIOs but do not have regional information infrastructures for sharing health data
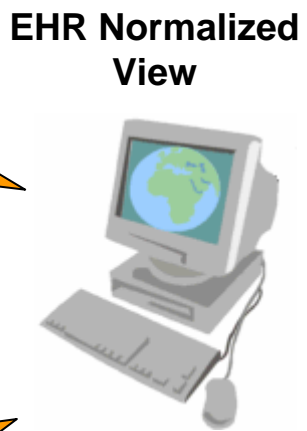 - Hospital and provider systems are all different with few systems based on federal health standards
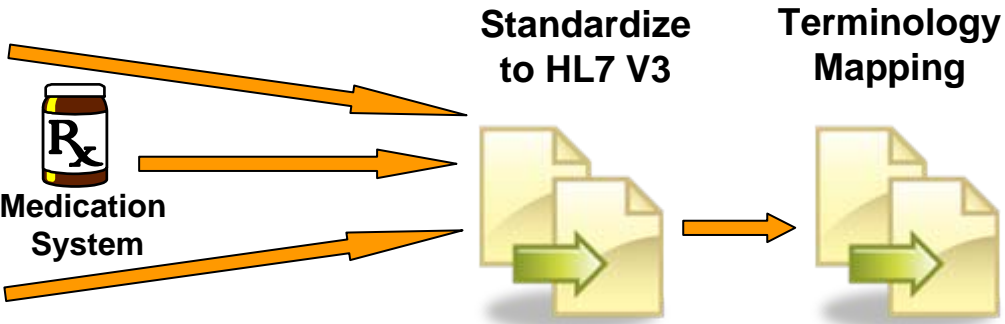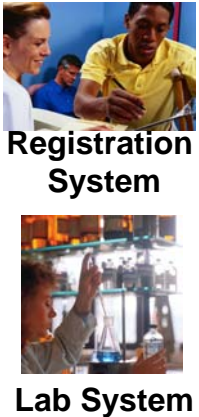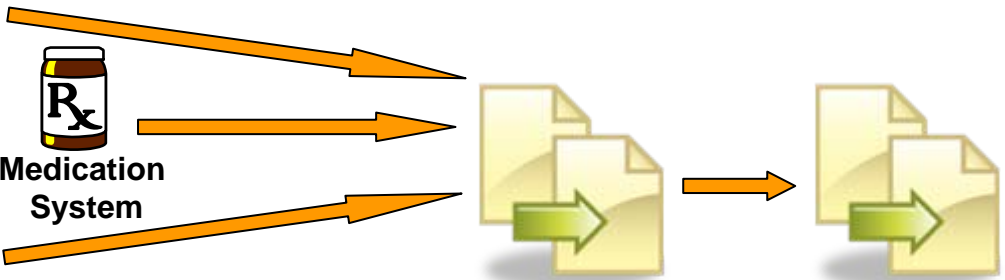
Accenture's Solution Overview

Provider

RHIO

NHIN

Hazard ARH Hospital
Letcher County Department of Health
Perry County Department of Health
Univ. of Kentucky Chandler Medical Health
University of Kentucky Clinic
Provider Applications
Message Handling Service

Sullivan County Regional Health Dept.
Holston Medical Group
Johnston Memorial Hospital
Mountain States Health Alliance
Provider Applications
Message Handling Service

American Medical Facilities Management
Beckley ARH Hospital
New River Health Association
WV University Physicians of Charleston
Summers County ARH Hospital
Cabin Creek Health Center
Provider Applications
Message Handling Service

Inbound Message Processor
Web Services
Portal
Oracle HTB
Eastern Kentucky

Inbound Message Processor
Web Services
Portal
Oracle HTB
CareSpark

Inbound Message Processor
Web Services
Portal
Oracle HTB
West Virginia eHealth Initiative

Record Locator Service
MPI
Reporting Service
Re-Linking Service
Database

Data and Semantic Normalization

RHIO 1 – Provider A

Registration System

Medication System

Lab System

Standardize to HL7 V3

Terminology Mapping

EHR Normalized View

RHIO 2 – Provider B

Registration System

Medication System

Lab System
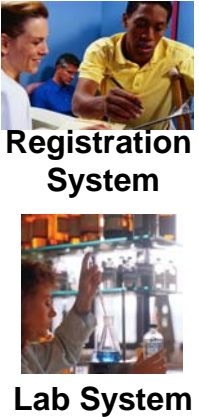
Implications of Technical Approach

- Heavy emphasis on data standardization
  - Pros
    - Critical for public health, care management, clinical research
  - Cons
    - Hard to do!
- Sophisticated Information Governance
  - Pros
    - Critical for obtaining patient trust
  - Cons
    - Very difficult to establish common business rules
    - Impacts usability
- Flexible Architecture
  - Pros
    - Allows for increased control of where data resides (Federated vs. Centralized)
  - Cons
    - Increases technical complexity and impacts performance

Licensure Issues
These are policy/business issues

- Provider authentication was dealt with at the local provider organization level
- Patients signed a consent to allow data sharing across the NHIN prototype with participating physicians
- In our model, providers were not giving care outside their state, but were accessing medical information from four states – therefore licensing issue was not
- Patients were given the choice to establish relationships with physicians or block access to their data
- Technical architecture must be flexible as business and policy rules will vary between local communities

Prototype Successes & Challenges

- Building a NHIN requires teamwork between a complex and large number of stakeholders
- Incentives must be aligned and be of sufficient magnitude to promote health data sharing for the NHIN to succeed
- Licensure was not a big issue in our model due to the "pull model" used for data sharing (information was brought to the provider rather than the provider giving care outside his state)
- Data can be extracted from a wide variety of provider systems and converted into semantically normalized data
- Flexibility regarding architecture will be critical given the variety of views regarding privacy

- OUR CONSORTIUM SUCCEEDED IN DEVELOPING A NATIONWIDE HEALTH INFORMATION NETWORK PROTOTYPE